1998 NET SYSTEM POWER CALCULATION

(1998 California Power Mix)

Gray Davis, *Governor*

April 1999

California Energy Commission

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Introduction

Each year, the Energy Commission is directed by legislation to calculate Net System Power, which represents the mix of fuel types comprising the generic (undifferentiated) pool of power available for sale in California. This information provides consumers a basis for comparing various electricity products. For example, if Company A claims that its product is "greener" (better for the environment) than power produced by other companies, the consumer can compare Power Content Labels. The Power Content Label shows the proportions of fuel types comprising the mix of the product offered, as well as Net System Power.

The sample below shows a power content label for a hypothetical product which a retail supplier claims to consist of 50 percent specific purchases (of eligible renewables in this case) and 50 percent non-specific net system power. For working purposes, staff refers to Senate Bill 1305 Power Content Label's "CA POWER MIX" as "Net System Power", which is the name given to that quantity in the legislation.

POWER CONTENT LABEL

ENERGY RESOURCES	PRODUCT NAME* (projected)	1998 CA POWER MIX** (for comparison)
Eligible Renewable	**55%**	11%
-Biomass & waste	**-**	2%
-Geothermal	**-**	5%
-Small hydroelectric	**-**	2%
-Solar	**-**	<1%
-Wind	**-**	1%
Coal	**10%**	20%
Large Hydroelectric	**11%**	22%
Natural Gas	**16%**	31%
Nuclear	**8%**	16%
Other	**<1%**	<1%
TOTAL	**100%**	100%

* 50% of Product Name is specifically purchased from individual suppliers.

**Percentages are estimated annually by the California Energy Commission based on the electricity sold to California consumers during the previous year.

For specific information about this electricity product, contact Company Name. For general information about the Power Content Label, contact the California Energy Commission at 1-800-555-7794 or www.energy.ca.gov/consumer.

The remainder of this report explains staff's calculation of the 1998 Net System Power and is divided into the following sections:

- 1998 Net System Power
- How Net System Power is Calculated
- Data Used to Calculate 1998 Net System Power, and
- Differences Between the 1998 and Final 1997 Net System Power Calculations

1998 Net System Power

This section provides staff's estimation of the 1998 Net System Power, a technical definition of Net System Power and its derivation.

1998 CA POWER MIX	
Fuel Type	Net System Power
Coal	20%
Large Hydroelectric	22%
Natural Gas	31%
Nuclear	16%
Other	<1%
Eligible Renewables	11%
Total:	**100%**

Fuel Types do not add to 100 percent because of rounding.

What is Net System Power? The Statutory Definition...

According to Senate Bill 1305 (Stats. 1997, Ch. 796, Section 1), Net System Power is "the mix of electricity fuel source types established by California Energy Resources Conservation and Development Commission representing the sources of electricity consumed in California that are not disclosed as specific purchases" by retail service providers.

What is Net System Power? The Practical Definition...

Net System Power is the percentage of annual generation produced in California for consumption in the state during the previous calendar year from each of the statute's

fuel type categories. Imports of out-of-state generation by fuel type are added in, but both self-generation and specific purchases by fuel type are subtracted out.

How Net System Power is calculated:

Net System Power is calculated using a three-step process:

- first, calculate gross system power by:
  - summing all in-state generation by fuel type
  - estimating imports of power from net flows, and
  - establishing the generation mix for out-of-state generation imports delivered at interface points and metered by the system operators;
- second, catalog and subtract from the gross system power mix all Specific Purchases identified by retail suppliers; and,
- third, catalog and subtract from the gross system power mix all self-generated power.

What Are Specific Purchases?

Specific Purchases refer to power sales for which the seller made a specific claim as to the fuel types used to produce the power. Any company that chooses not to make specific claims need only disclose Net System Power on its Power Content Label.

What are the Net System Power Fuel Types?

SB 1305 specified that the following fuel types be disclosed:

- Coal
- Large Hydroelectric (greater than 30 megawatts)
- Natural gas
- Nuclear
- Other (used for fuel types that are less than 2 percent of net system power)
- Eligible Renewables
  - Biomass and Waste
  - Geothermal
  - Small Hydroelectric (less than or equal to 30 megawatts)
  - Solar
  - Wind

The Energy Commission may specify additional categories or change these categories, consistent with the requirements of SB 1305 and subject to public hearing, if it determines that the changes will facilitate SB 1305's "disclosure objectives."

Data Used to Calculate the 1998 Net System Power

Data collection for the 1998 Net System Power Report (NSP) was a challenging process. Staff intended to rely on Quarterly Fuel and Energy Report (QFER) submittals for most of the data needed to produce the fuel shares contained in the Net System Power calculation. During 1998, California implemented restructuring of the electricity industry that created a competitive market for generation. With the advent of competition came new concerns about disclosure of market-sensitive data. Confidentiality concerns, raised by several of the utilities, were given as the basis for not wanting to disclose certain types of data. The Energy Commission responded by: 1) conducting public proceedings and workshops on data collection, 2) implementing new regulations to protect market-sensitive data from being divulged, and 3) updating several data collection forms to reflect restructuring changes. Even so, reporting compliance was spotty. Most utilities reported some of the data requested, while other utilities fully complied. Some utilities refused to report certain data, or refused to use the updated forms.

Commission staff investigated the possibility of using other sources of public data such as the U.S. Department of Energy, Energy Information Administration (EIA) or Federal Energy Regulatory Commission (FERC). While these agencies did collect useful information, this data alone would not have been sufficient to complete the Net System Power calculation. Moreover, the data for 1998 would not be available from these agencies in time to meet the legislatively mandated (April 15, 1999) deadline.

SB 1305 requires generators to report their output to the Energy Commission through system operators, for which compliance has been superb. However, since the reporting regulations were not put into place until October of 1998, there was no reporting requirement under SB 1305 for generation that occurred during the first three quarters of 1998. Even if SB 1305 required information had been submitted for the entire year, it would not have been sufficient by itself to calculate Net System Power.

Under these circumstances, staff made a judgement call and decided that the best option available was to utilize the latest QFER data available and backfill the “holes” with QFER data reported for the same corresponding period of 1997. For example, if 1998 3rd Quarter QFER form 1 data were missing, QFER form 1 data for July 1997, August 1997 and September 1997 were substituted.

Data on Imported Power

Characterization of net imports of electricity to California presents a special problem. The Energy Commission lacks authority to require out-of-state generators to report power that is imported into California. Two of the major utilities expressed concern over confidentiality and resisted efforts to collect data they had been providing before competition. (For 1997 NSP, QFER form 2 data were provided and were utilized.) For 1998 NSP, none of the large utilities reported imports for the entire year using the

updated QFER form. Data for imports and exports were estimated using net flow data from the transmission inter-ties. The system operators provided this data.

Allocating Imports of Electricity by Fuel Type

For 1998, staff utilized the same method for allocating imported power by fuel types as was used for 1997 Net System Power. Staff used system operator data to estimate imports and applied the ***1994 Electricity Report*** non-firm energy fuel mix assumptions for the generation mix of out-of-state imports. These assumptions follow:

The Pacific Northwest

80 percent hydroelectric
20 percent coal

The Southwest

74 percent coal
26 percent natural gas

These assumptions were originally developed as inputs for a production cost model used to produce the ***1992 Electricity Report***. These dated assumptions ignore seasonal and wet-/dry- year variations. Even so, they are the best tools available at this time. Staff plans to hold workshops to address this and other imported power issues.

Differences Between the 1998 and Final 1997 Net System Power Calculations

The major differences between the 1998 and Final 1997 Net System Power calculations are:

- Because 1997 was the first year that Net System Power was calculated, there were no specific purchases claimed. For 1997, Net System Power was the same as gross system power.

- For 1998, imports data from out of state (net flows across transmission inter-ties) from system operators were substituted because QFER data on imports were insufficient.

- During 1998, some fossil-fired thermal plants were reclassified (from utility owned to non-utility owned) due to divestiture by the investor owned utilities.

- For 1997, staff used Energy Information Agency Form 412, which covers only the 1996-1997 Fiscal Year (July 1, 1996 through June 30, 1997) for LADWP. For 1998, LADWP provided QFER data for the calendar year.

1998 Net System Power

Net System Power Calculation for 1998			
Fuel Type	GigaWatt-hours		Net System Power
Coal		52,430	20.2%
Large Hydroelectric		56,407	21.8%
Natural Gas		81,491	31.4%
Nuclear		41,353	16.0%
Other		4	0.0%
Eligible Renewables		27,500	10.6%
Biomass & Waste	5,060		2.0%
Geothermal	12,400		4.8%
Sm Hydro (≤30 MW)	6,425		2.5%
Solar	839		0.3%
Wind	2,776		1.1%
Total:		**259,185**	**100%**

1997 Final Net System Power

Net System Power Calculation for 1997			
Fuel Type	GigaWatt-hours		Net System Power
Coal		51,201	20.9%
Large Hydroelectric		56,323	23.1%
Natural Gas		73,269	30.0%
Nuclear		36,741	15.1%
Other		173	0.1%
Eligible Renewables		26,267	10.8%
Biomass & Waste	5,373		2.2%
Geothermal	11,950		4.9%
Sm Hydro (≤30 MW)	5,395		2.2%
Solar	810		0.3%
Wind	2,739		1.1%
Total:		**243,972**	**100%**